

Mono-ethyl phthalate

CAS No. 2306-33-4

Metabolite of diethyl phthalate

CAS No. 84-66-2

Diethyl phthalate is an industrial solvent used in many consumer products, particularly those containing fragrances. Products that may contain diethyl phthalate include perfume, cologne, deodorant, soap, shampoo, and hand lotion. People exposed to diethyl phthalate will excrete mono-ethyl phthalate in their urine. The amount of mono-ethyl phthalate is an indicator of how much contact with diethyl phthalate has occurred.

Workplace air standards for external exposure have been established (ACGIH) or recommended (NIOSH) for diethyl phthalate. Generally, diethyl phthalate has low acute toxicity. It has not been completely classified with respect to its carcinogenicity (U.S. EPA, IARC, NTP). Information about external exposure (environmental levels) and health effects is available from the EPA IRIS Web site at <http://www.epa.gov/iris> and from ATSDR at <http://www.atsdr.cdc.gov/toxprofiles>.

Concentrations reported in Table 62 are similar or slightly lower than those reported in a non-random subsample from NHANES III (Blount et al., 2000). In the current NHANES 1999-2000 subsample, geometric mean levels of the demographic groups were compared

Table 62. Mono-ethyl phthalate

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population aged 6 years and older, National Health and Nutrition Examination Survey, 1999-2000.

	Geometric mean (95% conf. interval)	Selected percentiles (95% confidence interval)						Sample size
		10th	25th	50th	75th	90th	95th	
Total, age 6 and older	179 (159-201)	28.9 (23.6-34.2)	61.4 (54.0-69.7)	164 (142-192)	450 (378-523)	1260 (988-1490)	2840 (2020-4070)	2536
Age group								
6-11 years	91.3 (73.0-114)	27.2 (20.4-35.7)	40.8 (35.9-46.8)	74.7 (50.6-107)	197 (129-259)	378 (290-644)	756 (379-1070)	328
12-19 years	211 (167-266)	32.7 (22.4-50.6)	72.4 (53.6-99.8)	193 (141-256)	558 (432-806)	1510 (1060-2100)	3260 (1670-4100)	752
20 years and older	190 (168-214)	27.7 (22.0-34.5)	63.3 (56.7-74.9)	180 (154-210)	482 (409-555)	1340 (1010-1660)	3480 (2210-5100)	1456
Gender								
Males	179 (157-204)	28.4 (23.8-35.4)	54.7 (48.3-64.1)	154 (121-191)	523 (400-621)	1430 (1150-2090)	3480 (2270-4330)	1214
Females	178 (154-206)	28.0 (21.8-32.1)	65.0 (57.6-80.2)	174 (145-205)	425 (356-482)	977 (825-1340)	2230 (1330-4100)	1322
Race/ethnicity								
Mexican Americans	181 (163-201)	30.2 (25.2-38.1)	66.8 (56.6-77.4)	174 (150-205)	441 (410-510)	1250 (893-1410)	1720 (1410-2450)	813
Non-Hispanic blacks	322 (278-373)	56.1 (48.3-73.2)	127 (111-143)	306 (256-350)	789 (588-996)	1880 (1340-2460)	3600 (2100-4900)	603
Non-Hispanic whites	152 (134-173)	27.2 (20.1-31.1)	52.3 (44.6-61.4)	133 (110-157)	366 (312-450)	977 (796-1340)	2470 (1430-4330)	907

after adjustment for the covariates of race/ethnicity, age, gender, and urinary creatinine. Urinary mono-ethyl phthalate levels were found to be lower for ages 6-11 years than for the other two age groups (trending in an opposite direction from mono-butyl, mono-benzyl, and mono-ethylhexyl phthalates, all of which decreased with increasing age). Levels in females were higher than levels in males. Non-Hispanic blacks had higher levels than non-Hispanic whites or Mexican Americans. It is unknown whether differences between ages, genders, or races/ethnicities represent differences in exposure, body-size relationships, or metabolism.

Table 63. Mono-ethyl phthalate (creatinine adjusted)

Geometric mean and selected percentiles of urine concentrations (in µg/gram of creatinine) for the U.S. population aged 6 years and older, National Health and Nutrition Examination Survey, 1999-2000.

	Geometric mean (95% conf. interval)	Selected percentiles (95% confidence interval)						Sample size
		10th	25th	50th	75th	90th	95th	
Total, age 6 and older	163 (148-179)	33.0 (29.1-35.8)	64.7 (57.5-73.5)	141 (132-155)	360 (313-411)	898 (762-1150)	1950 (1460-2730)	2536
Age group								
6-11 years	92.6 (74.2-116)	29.7 (24.9-34.9)	45.6 (33.6-57.7)	79.4 (61.2-121)	165 (124-208)	341 (219-559)	625 (365-784)	328
12-19 years	142 (120-168)	29.8 (27.0-33.5)	50.7 (41.4-57.9)	122 (86.2-168)	361 (279-495)	879 (676-1260)	1550 (907-2030)	752
20 years and older	179 (161-199)	34.5 (29.1-39.1)	75.6 (66.3-83.6)	154 (139-170)	390 (338-452)	1010 (810-1440)	2170 (1670-3490)	1456
Gender								
Males	141 (124-159)	27.6 (22.6-33.1)	48.9 (40.3-60.8)	120 (106-138)	324 (268-391)	996 (761-1420)	1940 (1460-2900)	1214
Females	187 (167-209)	42.7 (34.7-51.7)	81.4 (73.4-94.8)	157 (142-182)	377 (333-453)	821 (719-1150)	1920 (1100-3410)	1322
Race/ethnicity								
Mexican Americans	164 (145-186)	36.3 (29.2-41.5)	63.4 (53.6-77.9)	154 (136-175)	382 (323-469)	814 (692-886)	1330 (1010-1860)	813
Non-Hispanic blacks	208 (183-237)	46.7 (38.4-54.7)	86.4 (69.8-108)	196 (164-232)	443 (363-528)	1030 (762-1700)	1880 (1290-2450)	603
Non-Hispanic whites	149 (133-167)	31.8 (26.5-34.7)	58.6 (50.7-68.6)	128 (113-139)	313 (249-376)	834 (663-1200)	1950 (1420-3350)	907